



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
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Seattle, WA 98115

JAN 14 2000

MEMORANDUM FOR: Penelope D. Dalton
Assistant Administrator for Fisheries

FROM: *for* William Stelle
Regional Administrator

SUBJECT: Determination of a Commercial Fishery Failure Due to a Fishery
Resource Disaster Under Section 312 (a) of the Magnuson-Stevens
Fishery Conservation and Management Act- -DECISION
MEMORANDUM

This memorandum replaces my memorandum of January 12, 2000 on the same subject. Based on our interpretation of Section 312(a) of the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), we believe that the Pacific Groundfish Fishery is suffering from a commercial fishery failure due to a fishery resource disaster. Our findings are based on the "undetermined cause" provisions of MSFCMA 312(a). Therefore, I request that you make a determination that a commercial fishery failure exists in the Pacific Groundfish fishery due to a fishery resource disaster.

What is the need for action?

California Governor Davis and Oregon Governor Kitzhaber have requested a declaration of a federal disaster in the Pacific groundfish fishery. These letters are in response to the stringent management measures that we are adopting for this year to protect and rebuild depressed stocks (Attachments 1 and 2). We have not yet received a request from Washington Governor Locke. The California Congressional delegation has approached OMB for funding (Attachment 3).

What is the fishery resource disaster?

The MSFCMA does not provide a definition of what constitutes a "fishery resource disaster." For purposes of discussion we will define it as the following: Some thing(s) or event (s) has caused either substantial damage or harm to the stock of fish, fish habitat, or to the gear or vessels associated with the fishery.

We therefore define the Pacific Groundfish fishery resource disaster as an unusually low level of recruitment of young fish into the fishery for many of our groundfish species. Consequently, the abundance of these species is declining and resulting in reduced yields and harvests.



Did a fishery resource disaster occur?

The major species that make up the Pacific Coast groundfish fishery are Pacific whiting, sablefish, thornyhead rockfish, dover sole, widow rockfish, petrale sole, yellowtail rockfish, and lingcod, and a complex of many rockfish species referred as "other rockfish" (Table 1). Because the Pacific whiting fishery is a stable fishery, in good health and largely distinct from the other fisheries, we are focusing on the non-whiting groundfish. The whiting fishery is subject to natural fluctuations but the fishery has been stable in recent years. In addition, the whiting fishery is the only fishery with an at-sea processing component, and for many reasons can be considered economically distinct from the other fisheries. Finally the whiting fishery is so large in terms of tonnage that including it would mask the extent of the decline in the other groundfish fisheries.

Each year the Pacific Fishery Management Council and NMFS establish harvest restrictions and an Acceptable Biological Catch (ABC) and Optimum Yield (OY) for stocks and stock complexes. The ABC is based upon the best scientific information available regarding an annual harvest policy that will produce MSY in the long-term. The OY is the harvest target which is set at or below ABC to avoid overfishing.

As the OY is the harvest target for each year, trends in annual landings reflect the overall health of the fishery. Over the period 1980 to 1999, annual landings of all non-whiting groundfish species reached a peak level of 112,000 tons in 1982, declined to 71,000 tons in 1986 and increased to 84,000 tons in 1989 (Figure 1). Since 1989, these landings have decreased every year to the recent 1999 level of 36,000 tons. During the 1980's and very early 1990's, stocks that were substantially above their MSY levels were being fished down. As stated in Amendment 6 to the Pacific Groundfish Management Plan (January 1992--5.3.1 Overview of the History of Exploitation and Management), MSY levels for these stocks were reached for the most part by 1991:

"....The overall result has been that in just a few years the Pacific coast groundfish fishery had progressed from harvesting surplus production, from generally healthy or underharvested fish stocks, to the point of excessive effort with major stocks at MSY levels and limited room for expansion of traditional fishing operations . . ."

Since 1991, the severity of harvest restrictions for Pacific groundfish has been increased to achieve conservation and management goals. However, for the year 2000, Pacific groundfish fisheries will be under the strictest management regime since implementation of the MSFCMA. This regime has the prime purpose of rebuilding key species--most notably bocaccio, lingcod, Pacific ocean perch, canary rockfish, and cowcod. In comparison to past years, allowable catches and associated trip and bag limits are greatly reduced while new gear restrictions, seasons, size limits, and area closures are being imposed. These strict restrictions are expected to continue for a number of years, as it may take several decades to rebuild rockfish species.

For the year 2000 we are reducing the OYs for groundfish other than whiting to a combined level of 34,000 tons which if completely harvested will yield the lowest level of landings produced by this fishery since the MSFCMA was passed. However, we expect groundfish landings to be even lower than this total because we also are implementing new management measures to protect and rebuild depressed stocks that are within the 83 plus species that make up the Pacific groundfish fishery. These management measures may result in the inability to attain the OY or allocation for some relatively healthy co-occurring stocks, particularly bottom-dwelling rockfish on the continental shelf, whose harvest is restricted because it may result in bycatch of depressed stocks. Consequently, OYs (and their associated allocations to harvest groups) may not be completely harvested. We cannot estimate how much of the OYs will not be harvested. If 20 percent of the combined OYs cannot be harvested because of these restrictions, the projected 2000 harvest would be 27,000 tons (Labeled 00-M on Figure 1)—a 25 percent decrease from 1999 levels. Some industry projections indicate that possibly 40 percent of the OYs may not be harvested because of the gear, trip, and area regulations being imposed. For purposes of this analysis we will assume that 20 percent of the OYs will not be harvested.

What do these trends, say about the degree of the fishery resource disaster? Statistically, for the period 1981 through 1999, median annual landings and average annual landings are both about 74,000 tons. (This estimate is not that different from the sum of the long term yield for economically important species and estimates of recent catches for economically unimportant species.) Since 1993, landings have fallen below 70,000 tons with a 20 percent reduction in landings between 1997 and 1998, a 14% reduction between 1998 and 1999 and a potential of a 25 percent reduction between 1999 and 2000. Landings are projected to fall to 27,000 tons in the year 2000, more than 60 percent below median annual landings for the 1981-1999 period.

These trends reflect the general decline in groundfish resources, but these trends make it difficult to pinpoint when these declines reached a stage where a disaster situation has set in. Is the first year of the disaster 1998, 1999, or 2000? Perhaps most illustrative of such a situation are the sharp reductions in the OYs for the recently declared overfished species lingcod, Pacific ocean perch, bocaccio, canary rockfish, and cowcod whose OYs are reduced from their 1999 OY and catch levels from about 50 percent (bocaccio) to about 90 percent for cowcod (Figure 2 and Table 2). It is these reductions and their effects on other fisheries that led the Governors to request a disaster declaration.

Based on these sharp declines and the trend in non-whiting groundfish landings since 1993, we believe that the fishery is currently experiencing a fishery resource disaster which may also have occurred in 1999 and probably originated before 1999. Because current and future species rebuilding plans involve long-lived rockfish that take decades to recover, we expect the fishery resource disaster to continue for a number of years.

What are the potential causes of the fishery resource disaster?

Information is unavailable that can isolate the primary cause of the fishery resource disaster. There may be a number of reasons for the fishery resource disaster. Below is a listing of potential causes.

Ocean Regime Shift--During the past 20 years, the ocean climate has been warmer and with less plankton production than during the early 1970's when there was a widespread change in the oceanographic conditions associated with the California current. Evidence for other such multi-decadal "regime shifts" appear in long-term climatological records for the west coast and for other species, such as sardine, salmon, and anchovy (Figures 3-6).

El Nino--We have had anomalous warming associated with El Nino conditions such as those that occurred in 1998, when the thermocline in the southern California Bight reached 100 meters, more than twice the normal depth of 40 meters. El Nino events have been considered atypical but we have had an unusual number of these events in recent times. El Ninos have occurred in 1982 (perhaps the strongest), 1986-87, 1991-92, 1994, and 1997-98 time periods.

Productivity--A recent comparison of the productivity of our stocks to similar stocks around the world indicates that our stocks are less productive (Figure 7). We don't know if our fish resources are inherently less productive, if the West Coast ecosystem (water, temperature, nutrients, predator-prey relationships, etc.) has elements that make our fish stocks are less productive than other stocks, or if the recent ocean regime shift is the major reason for low productivity.

Predation - We have no information on the predation on non-whiting groundfish by marine mammals and whales, but we think this is an unlikely cause of the lack of recruitment into the fishery.

Harvest Rate Policies - Over the past 20 years, a major component of the groundfish management program has been annual catch quotas for nearly 20 of the 83 species. Generally, our regulated fisheries have tended to hit management targets, and our management targets have been primarily biologically based. But in some instances, in order to phase-in severe management reductions, OYs (sometimes called harvest guidelines) were set above ABC's to avoid serious socio-economic disruption to the industry and fishing communities. (We were able to do this under the prevailing Pacific Groundfish FMP and MSFCMA. Under the current MSFCMA and the current FMP, such an action would be deemed "overfishing, and could only occur if we met the standards for "mixed stock" exceptions.) These quotas were based on scientific stock assessments and adjusted periodically to levels which were expected to obtain OY while

allowing the stock's abundance to be fished down to near 35% of its unfished level. (Attachment 4 gives a history of Pacific groundfish harvest policies.) The 35% target level was considered relatively conservative in comparison to other national and international fisheries. At the time these harvest policies were used, the best available science indicated that the stocks would not fall below 75% of MSY.

Unfortunately, despite adoption of more conservative harvest policies, several stocks have continued to decline to dangerously low levels near 10% of unfished levels. Lingcod, bocaccio, and Pacific ocean perch, canary rockfish, and cowcod have been determined to be overfished. For purposes of clarification, we note that natural fluctuations and changes in stock assessment methodology can result in a stock being called "overfished" -Section 102(20) of the MSFCMA defines "overfishing as: "a rate or level of fishing mortality that jeopardizes the capacity of a fishery to produce the maximum sustainable yield in such fishery." The MSFCMA defines an "overfished" stock or stock complex as one whose size is sufficiently small that a change in management practices is required to achieve an appropriate level and rate of rebuilding. These definitions do not distinguish among the reasons that a stock is depleted, whether due to excessive fishing pressure, environmental conditions, lower productivity, or other factors unrelated to fishing. Unfortunately this terminology makes it sound like all resource problems are due to unconstrained harvest, which is not the case.

Nevertheless, stocks, that are low in abundance need protection from fishing. This is why for the past two years, we have increased target levels to 40% or 45% for rockfish species. Early this year, the Pacific Fishery Management Council's Scientific and Statistical Committee will convene a panel of scientists to evaluate the Council's harvest policy and to make harvest policy recommendations for 2001 and beyond.

What is the likely cause of the fishery resource disaster?

We are unable to determine the exact causes of the fishery resource disaster. Each year harvest rates were based on prevailing science information and models, FMP goals, and guidelines that in turn were based on the prevailing MSFCMA. Our harvest rates were deemed reasonable and responsible given worldwide knowledge of other species' productivity and in comparison to rates employed in other national and international fisheries. We are uncertain how such harvest rates have contributed to the low levels of recruitment. Until recently, it was unknown that west coast groundfish stocks were of lower productivity in comparison to other similar stocks. We do not know why these stocks have relatively lower productivity or the degree to which the health of these stocks is linked to changes in the California current. We do know that during the 1980's and 1990's there has been a decline in the basic productivity of the California Current from 1977 to the present that is correlated with a major ocean regime shift. During this period there have also been an abnormally high number of El Nino events. Therefore, it is likely that changes in the California current and potentially these El Nino events have contributed to the decline in recruitment of these long-lived rockfish species which may live as long as 50 to 100 years.

Therefore, based on these unknowns, we believe that the unusually low level of recruitment of young fish into the fishery for many of our groundfish species has resulted in a fishery resource disaster of undetermined but probably natural causes. These causes have exacerbated the difficulties in setting harvest quotas that would try to counteract these causes through more stringent conservation and management measures.

What is the associated commercial fishery failure?

We define the commercial fishery failure as the significant loss of the commercial value of lost harvest opportunities. Figure 8 shows the trend in ex-vessel revenues and landings. Revenues have been adjusted to account for inflation by revising all estimates to reflect the purchasing power of the average dollar in 1998. Peak ex-vessel revenues in the fishery occurred in 1982 and 1987 when \$94 million was earned through the landing of non-whiting groundfish. Since 1987 revenues have declined along with harvests except the 1995-97 period, where a short term boom in the Japanese market caused prices of sablefish and rockfish to reach all time highs, consequently causing the average price of non-whiting groundfish to reach all time highs (Figure 9). The Japanese market contracted severely in 1998 and consequently ex-vessel prices for Pacific groundfish products fell but increased slightly in 1999. Over the period 1981 through 1994, the average annual price for non-whiting groundfish was \$0.44 per pound, for 1998 the average price was \$0.52 per pound, and for 1999 the average price is estimated to be \$0.55 per pound.

Using 1999 as a benchmark for assessing the amount of the commercial fishery failure and assuming that ex-vessel prices in the year 2000 are the same as those seen in 1999, the projected commercial harvest value for the year 2000 is about \$33 million—25 percent less than actual 1999 revenues of \$44 million. Alternatively, using an average ex-vessel price based on the 1981-1994 period for both the years 1999 and 2000, leads to a projected estimate of \$26 million in revenues for the year 2000 as compared to \$35 million estimate for 1999. Therefore, the resulting estimates of the commercial fishery failure range from \$9 million to \$11 million.

Previous estimates have typically ranged from \$3 to \$15 million on an ex-vessel basis. The \$3 million estimate assumed that all of the OYs would be harvested while other estimates were based on preliminary Council recommended OYs or perhaps had different benchmark years. This analysis assumes that 20 percent of the OYs will not be harvested as a result of management measures.

The commercial fishery failure affects several different user groups. During 1998, a total of 1,961 vessels landed West Coast groundfish, of which 1,519 vessels operated in the open access sector and 442 operated with limited entry permits (240 trawl vessels and 202 nontrawl vessels). On a State basis, a total of 1,242 vessels (1,050 open access, 192 limited entry) landed groundfish in California, 572 vessels (400 open access, 172 limited entry) in Oregon, and 147 vessels (69 open access, 78 limited entry) in Washington.

Management measures have been put in place for open access and limited entry segments of the

fishery, and for some species in the tribal fisheries. Most of the trip limits for the limited entry and open access fleets are to be applied cumulatively over a specified time period. Trip limits are set to minimize discards by distributing species cumulative landings limits at levels that encourage fishers to direct fishing effort on healthy species when those species are most concentrated, or when bycatch of other species is expected to be relatively low. For the year 2000, trip limits are set to move fishing effort away from the continental shelf, where several of the overfished species congregate. For 2000, differential trip limits were also established for limited entry trawlers operating with different trawl gear configurations (bottom trawling with footropes greater 8 inches in diameter, bottom trawling with footropes smaller than 8 inches in diameter, and midwater trawling). Trawling with footropes that have roller gear or other large gear designed to bounce over tough rockpiles tends to allow those vessels greater access to areas where several of the overfished species congregate. Therefore, landings of shelf rockfish are prohibited if large footrope trawls (roller gear) are used; small amounts of shelf rockfish bycatch may be landed if small footrope trawls are used.

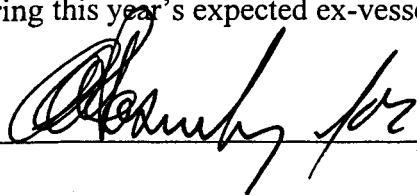
It is expected that of these groups, the open access vessels and limited entry non-trawl vessels will experience the greatest reduction in trip limits in 2000. We are also imposing the gear restrictions on trawlers to protect depleted and associated stocks normally caught with bottom trawls. Higher trip limits of some species will be available to trawlers that employ mid-water rather than bottom-trawl gear. However, we have no record of how many of the 240 limited entry trawl vessels own or have access to mid-water gear. Mid-water gear has seldom been used except to harvest Pacific whiting and widow rockfish. Fishermen have testified that it is difficult to fish for widow rockfish with bottom trawl gear without taking canary rockfish-a depleted species at the same time. Many vessels may not have adequate horsepower or vessel configurations to adapt to mid-water trawling. Consequently, small to medium trawlers may suffer a greater impact from the fishery resource disaster.

The corresponding economic effects of the commercial failure can be expanded beyond the loss in ex-vessel revenues. An economic analysis sponsored by Oregon Department of Fish and Wildlife of the impacts of proposed Council measures on the Oregon economy showed that 1998 Oregon landings of non-whiting of groundfish worth \$20 million generated \$46 million in personal income throughout the state via the "multiplier effect." If similar relationships hold for Washington and California, then a commercial fishery failure of \$11 million in ex-vessel revenue leads to a loss in personal income of about \$25 million. Average annual earnings per job (full and part-time) in Oregon coastal counties is about \$22,000, implying that the losses in personal income reflect a projected potential loss of 1,100 jobs in 2000 in comparison to 1999. The Oregon economic analysis above suggests that one large processor, three medium processors, or the equivalent of 33 small processors in Oregon may close down. This study also indicates that a full time groundfish trawler has an average revenue of \$200,000. Therefore, a reduction of harvest value of \$11 million is equivalent to 55 trawlers being eliminated. We note that these estimates are linear extrapolations and that such changes have yet to be seen. However, given that the fishery has been under significant revenue reduction in 1998 and 1999, it can be expected that there will be a number of bankruptcies and perhaps a major restructuring of the

industry this year or in the upcoming years as stock rebuilding strategies are pursued.

RECOMMENDATION: I recommend that you declare that there exists in the Pacific groundfish fishery a commercial fishery failure due to a fishery resource disaster that is the result of undetermined causes. Specifically, the Pacific Groundfish fishery resource disaster is an unusually low level of recruitment of young fish into the fishery for many of our groundfish species that has resulted from undetermined but probably natural causes. These causes have exacerbated the difficulties in setting harvest quotas that would try to counteract these causes through more stringent conservation and management measures. Consequently, the abundance of these species is declining and resulting in reduced yields and harvests. These reduced yields and harvests will yield a commercial fishery failure of about \$11 million in ex-vessel revenues when comparing this year's expected ex-vessel revenues to last year's revenues.

1. I concur.



Date

2. I do not concur.

Date

Attachments

cc: SWR, F/NWO2(2), F/NWC, F/SF, GCNW
drafted by: Stephen P. Freese, NWO2, 206-526-6113